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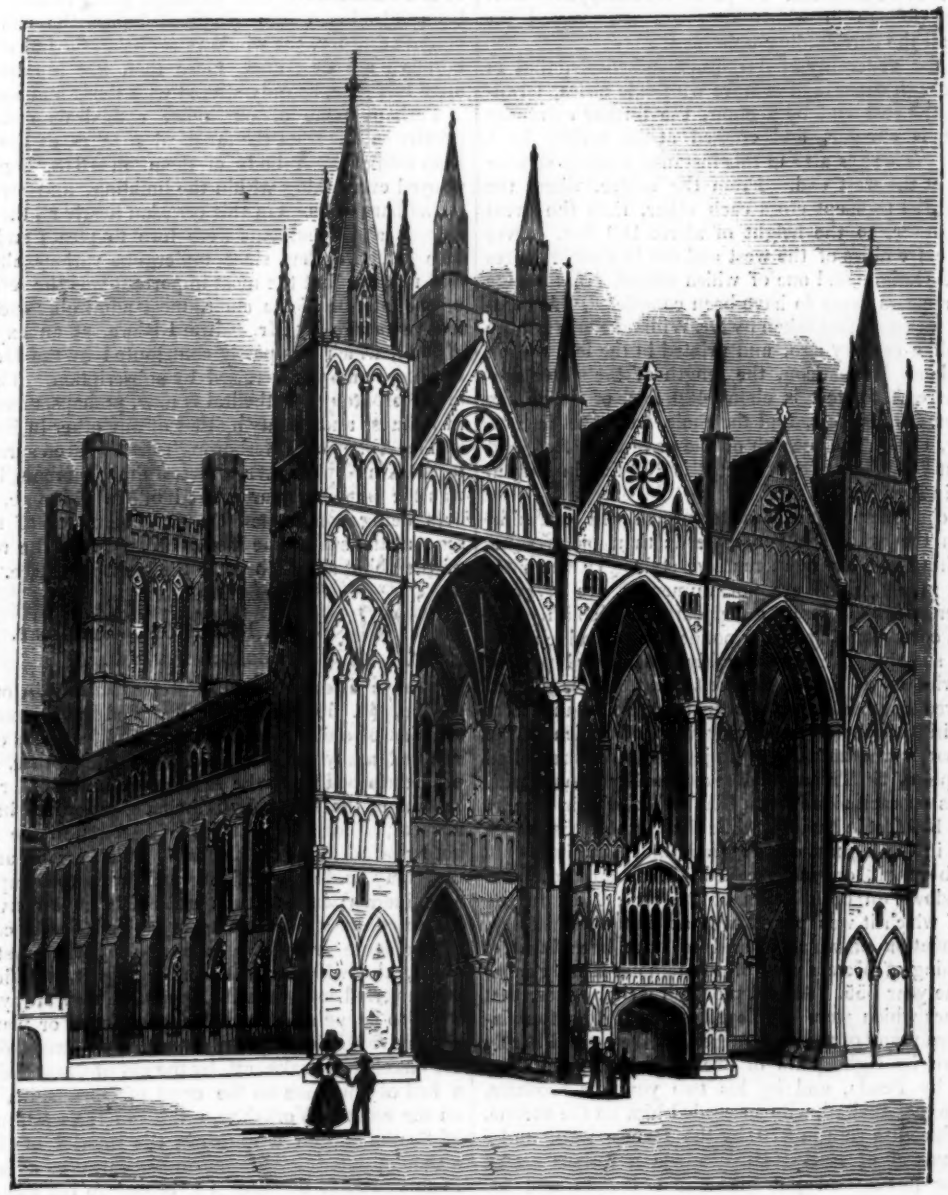
## CATHEDRAL OF PETERBOROUGH.



[West Front of Peterborough Cathedral.]

Like the Cathedral of Lichfield, of which we gave an account in our 61st number, the Cathedral of Peterborough possesses the advantage of nearly standing apart from every other building. With the exception of some of the prebendal houses, which abut upon the southern termination of the transept, the ground is clear for a considerable space around it on all sides. The old churchyard—long the only one in the city, and consequently crowded with tombstones—encompasses its eastern extremity, and extends along part of both the north and south sides. About ten or twelve years ago the authorities of the cathedral began to lay out this ancient and extensive cemetery in a manner somewhat similar to that of La Chaise at Paris, planting it with laurels, pines, willows, and other trees, shrubs, and flowers. These operations, which were carried on for some years, have been executed with great taste, and have proved in a high degree ornamental to the aspect of the cathedral. Before the western front is a spacious court, which is also now neatly laid out in grass-plats and gravelled walks, while rows of ancient elms combine with the noble architecture of other times, by which it is on all sides surrounded, to preserve to it an air of majesty in keeping with the sanctity of the spot. In the centre of the wall opposite to the cathedral is a turreted gate, leading to the city, and forming the entrance to the sacred pre-

cincts; in the south wall is another, which conducts to the episcopal palace; and in the north wall is a third, that of the deanery. All the three are rich and imposing structures. The site of the cathedral not being elevated above that of the surrounding country, which indeed is a dead flat for many miles, the building cannot be seen from a very great distance; but its great extent, and the height of its towers, make it a conspicuous and remarkable object from every point from which a view of the city is to be obtained. Its pinnacles and spires shoot from the foliage in which they are embosomed far beyond all the surrounding buildings.

Like the generality of our other cathedrals, that of Peterborough consists of a nave with side aisles, terminated at the east end by a choir, the further extremity of which is circular, and crossed at the middle by a transept. There is also in this instance a much smaller transept at the west end. From the centre, where the nave and the transept cross each other, rises the great lantern tower, to the height of above 188 feet. Over the two extremities of the west end are two other spires of less elevation, and one of which indeed (that to the south) appears never to have been completed. According to a measurement taken by Dr. William Parker, more than half a century ago, and printed in the late edition of Dugdale's Monasticon, the length of the whole edifice from east to west is about 480 feet, of which the nave occupies 231 feet, and the choir, from the door to the altar, 138. The breadth of the nave is 91 feet, and its height 78. The great transept is 203 feet in length, and 69 in breadth.

The character of the architecture of this cathedral is, upon the whole, rather majestic than picturesque. Every thing is in the most massive style. In the interior the pillars, which are not numerous, are of great circumference, and present an appearance of solidity and strength corresponding to the ponderous pile which they help to sustain. The most highly ornamented part of the exterior is, as usual, the west front. It is divided into three compartments, formed by so many lofty arches, in the central and narrowest of which is the great door, surmounted by a projecting structure called the Chapel of St. Thomas à Becket, having a tower with pinnacles on each side of it. The effect of this façade, which is 156 feet in breadth, while the height of the arches is 82, is in the highest degree grand and imposing.

Peterborough, originally called Medeshamsted, from the meadows on both banks of the river Nen, in the midst of which it was placed, was at first a monastery, the foundation of which is said to have been laid by Peada, king of Mercia, son of the famous King Penda, about the year 655. An old monkish writer states, that the stones which were employed in laying its foundations were many of them so large that they could hardly be drawn by eight pairs of oxen. But the buildings erected by Peada, and by his two younger brothers, Wulfer and Ethelred, who succeeded him on the throne, were reduced to ruin in 870 by the Danes, who, under the command of Earl Hubba, made a furious attack upon the place, and put the Abbot Hedda and his monks, eighty-four in number, to the sword, plundering the monastery at the same time of whatever it contained; after this they set it on fire, when it is said to have burned for fifteen days.

The monastery lay waste and uninhabited for about a century after this calamity, the area of the church coming at last to be used as a place of confinement for cattle; when, in 966, its restoration was commenced, under the patronage of King Edgar, by Athelwold, bishop of Winchester. The building, however, was again burnt down by accident in 1116. Two years after, the foundation of a new church was laid by the abbot, John de Sais, or Seez, (or, as Gunton calls him, John of Salisbury,) who was a Norman; and the structure thus begun is supposed to be the present cathedral. The part which John de Sais built was probably the east end. The work was carried on with more or less zeal by his successors; but the records of their several additions are very imperfect, and we are left to conjecture the age of some of the most important parts of the building, merely from the style of the architecture. Mr. Britton thinks that, with the exception of some unessential appendages, the whole must have been completed by about the middle of the thirteenth century. It is a curious fact, that although glass is said to have been introduced into England before the end of the seventh century, the windows of the Cathedral of Peterborough are described, more than five hundred years after this time, as only stuffed with reeds and straw.

Perhaps none of our other cathedrals suffered so greatly as this from the fanatical ravages of the republican soldiery. A body of them, in 1643, literally destroyed every thing within the building, and stripped it to the bare walls. On this occasion nearly all the ancient records and documents were torn to pieces and burnt. The cathedral has since undergone various alterations and repairs; but the most important was the restoration of the interior of the choir, most admirably executed a few years ago by Mr. Edward Blore, at an expense of £6000, which was partly contributed by the Dean and Chapter, and partly raised by subscription. The choir of Peterborough Cathedral is now, perhaps, unsurpassed in richness and beauty by that of any other in England.

The Abbey of Peterborough having been surrendered to the King by the then abbot, John Chambers, in 1540, was the following year erected into a bishopric, Chambers being consecrated the first occupant of the new see; at the same time it was ordered that the residence of the abbot should become the bishop's palace.

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## MINERAL KINGDOM.—Section 8.

### ORGANIC REMAINS.

We have already stated, and particularly in our third section, (p. 58,) that the stratified rocks contain the remains of animals and plants; and that beds of stone, situated many miles distant from each other, may be proved to belong to the same place in the order of succession of the strata, by remains of organized bodies, or FOSSILS, of identical species being found in the stone at both places. The word *Fossil*, which means any thing that may be dug out of the earth, used to be applied to all minerals; but modern geologists have conveniently restricted its application to organized bodies contained in the loose or solid beds composing the crust of the globe, and which are, for the most part, petrified; that is, converted into stone. *Fossils* are now always understood to be petrified remains of animals or plants, and we say *fossil* shells, *fossil* bones, *fossil* trees, &c. We are enabled to make out, by the aid of those bodies, that a bed of limestone on the coast of Dorsetshire, another on the coast of Yorkshire, a third in the western islands of Scotland, and a fourth in the interior of Germany, although differing perhaps in appearance, as far as the mere limestone is concerned, belong to the same age or period of formation in the chronological order of the strata. (See Diagram No. 1, Section 2, p. 21.)

Fossils reveal to us the important and wonderful fact, that the Author of Nature had created different species of animals and plants, at successive and widely distant intervals of time, and that many of those that existed in the earlier ages of our globe had become totally extinct, before the creation of others in later periods; that, prior to man being called into existence, innumerable species of living beings had covered the surface of the earth, for a series of ages, to which we are unable, and probably shall ever remain unable, to fix any definite limits. We farther learn, that a very large proportion of those creatures, of the later periods, had become extinct, and had been replaced by the animals which now exist

before the creation of our first parents. When that great event took place, the crust of the earth had already undergone numerous changes, and we have already said, in alluding to those changes, that they appear to us to afford indisputable proofs of design; to be evidences the most clear of the establishment of an order of things adapted to the predetermined nature of that more perfect creature, about to be sent as an inhabitant of the globe, to whom was to be given "dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth." We are also taught by the study of fossils that, prior to the creation of man, there had existed a totally different condition of our planet, in so far as regards the distribution of land and water, from that which now exists; that where there are now vast continents there must have been deep seas, and that extensive tracts of land must have occupied those parts of the globe which are now covered by the ocean. In many parts of the interior of our continents there must have been vast lakes of fresh water, which were drained by subsequent changes in the form of the land which bounded them, and were replaced by wide valleys, long antecedent to the existence of man. Thus, in the very heart of France, in a district along the banks of the river Allier, of which the town of Vichy may be taken as the centre, vast strata, full of fresh-water shells, prove that there must have existed, for many ages, a lake nearly a hundred miles long and twenty miles in average breadth. It is proved moreover, by the nature of organic remains, that changes of CLIMATE, no less remarkable, have taken place; and that a heat equal to that now existing in the equatorial regions must have formerly prevailed in latitudes far north of our island.

The organized bodies which are found in a fossil state belong to classes of animals and plants that exist on the land, or in lakes and rivers, and to those also which are inhabitants of the sea. The latter are by far the most numerous, as might be expected would be the case, when it is considered that the greater proportion of the strata must have been deposited at the bottom of the ocean. Of marine productions, shells and corals constitute the chief part, and for this reason, that being almost wholly composed of mineral substance, they are not liable to decay. In all cases of petrified remains of animals it is the hard parts only that we find; the whole of the flesh and softer parts have disappeared, so much so, that, with the exception of some instances of fishes and amphibious animals, no trace of the external form of the living animal can be discovered; and where bones are found it is very rarely that an entire skeleton is met with. There are fossil remains of

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| Among bodies belonging to the Sea. | Shells.<br>Corals and sponges.<br>Radiated animals, such as Star Fish.<br>Reptiles, resembling Crocodiles.<br>Fishes.<br>Cetacea, or the Whale tribe.<br>Crustacea, such as Lobsters and Crabs.<br>Plants. |
| Among bodies belonging to the Land. | Fresh-water shells, found in lakes and rivers.<br>Land shells, such as the Garden Snail.<br>Quadrupeds.<br>Reptiles.<br>Birds.<br>Insects.<br>Stems of trees and wood.<br>Smaller plants and leaves. |

These several bodies are not found indiscriminately throughout the whole series of the secondary and tertiary strata (Diagram No. 1); some are peculiar to the lowest beds, some to the intermediate, and some to the superior. The leading features of that distribution will be afterwards explained. But *all*, of whatever description they may be, *which occur in the secondary strata*, belong to species now wholly extinct. By far the greatest proportion of those found in the tertiary strata belong likewise to extinct species. It is only in the uppermost beds that there is any very considerable number of individuals which are identical with animals now in existence, and there they preponderate over the others.

The bones of man are not more liable to decay than those of other animals; but in no part of the earth to which the researches of geologists have extended, has there been found a single fragment of bone, belonging to the human species, incased in stone, or in any of those accumulations of gravel and loose materials which form the upper part of the series of the strata. Human bones have been occasionally met with in stones formed by petrifying processes now going on, and in caves, associated with the bones of other animals; but these are deposits possessing characters which prove them to have been of recent origin, as compared with even the most modern of the tertiary strata.

The geologist may be considered as the historian of events, relating to the animate and inanimate creation previous to that period when *sacred* history begins, or the history of man, in relation to his highest destiny. Although it belongs to the geologist to study the events that have occurred within his province, during the more modern ages of the world, as well as those which are in progress in our own day, his especial object is to unfold the history of those revolutions by which the crust of the globe acquired its present form and structure. The solid earth, with its stores of organic remains, which now rises above the surface of the sea, may be compared to a vast collection of authentic records, which will reveal to man, as soon as he is capable of rightly interpreting them, an unbroken narrative of events, commencing from a period indefinitely remote, and which in all probability succeeded each other after intervals of vast duration. Unlike the records of human transactions, they are liable to no suspicion that they may have been falsified through intention or ignorance. In them, we have neither to fear the dishonesty of crafty statesmen, nor the blunders of unlettered and wearied transcribers. The mummies of Egypt do not more certainly record the existence of a civilized people in remote ages on the banks of the Nile, than do the shells entombed in solid stone at the summit of the Alps and Pyrenees attest that there was a time when the rocks of those mountains occupied the bottom of a sea, whose waters were as warm as those within the tropics, and which were peopled by numerous species of animals, of which there does not now exist one single descendant.

Some scattered observations, and some fanciful theories founded upon them, show that a few of the philosophers of antiquity, and a few among the learned since the revival of letters, were not altogether unaware of the existence of these archives; but it is little more than half a century since their true value began to be understood. The cause of this is easily explained. Geology has grown out of the advanced state of other branches of knowledge. Until chemistry, mineralogy, botany, and above all zoology, or the natural history and comparative anatomy of animals, had arrived at a considerable degree of perfection, it was impossible to comprehend the language in which these records are written. Many of the early geologists, and some even in the present day, appear indeed to find no difficulty in reading them; and when they meet with a passage which is obscure they cut the knot, and reason upon some bold interpretation, which they arrive at by conferring upon Nature powers which she herself has never revealed to us that she has employed. But since the discovery, in recent times by Cuvier and others, of a key to the language of these precious documents, many have been unrolled; the errors of former interpretations have been discovered; and we may now entertain a well-grounded hope, that if we cease to guess at meanings, and patiently search and compare the materials that are accessible to us, we shall arrive at such sound conclusions, that geology will be placed on as secure a basis as the most exact of the sciences.

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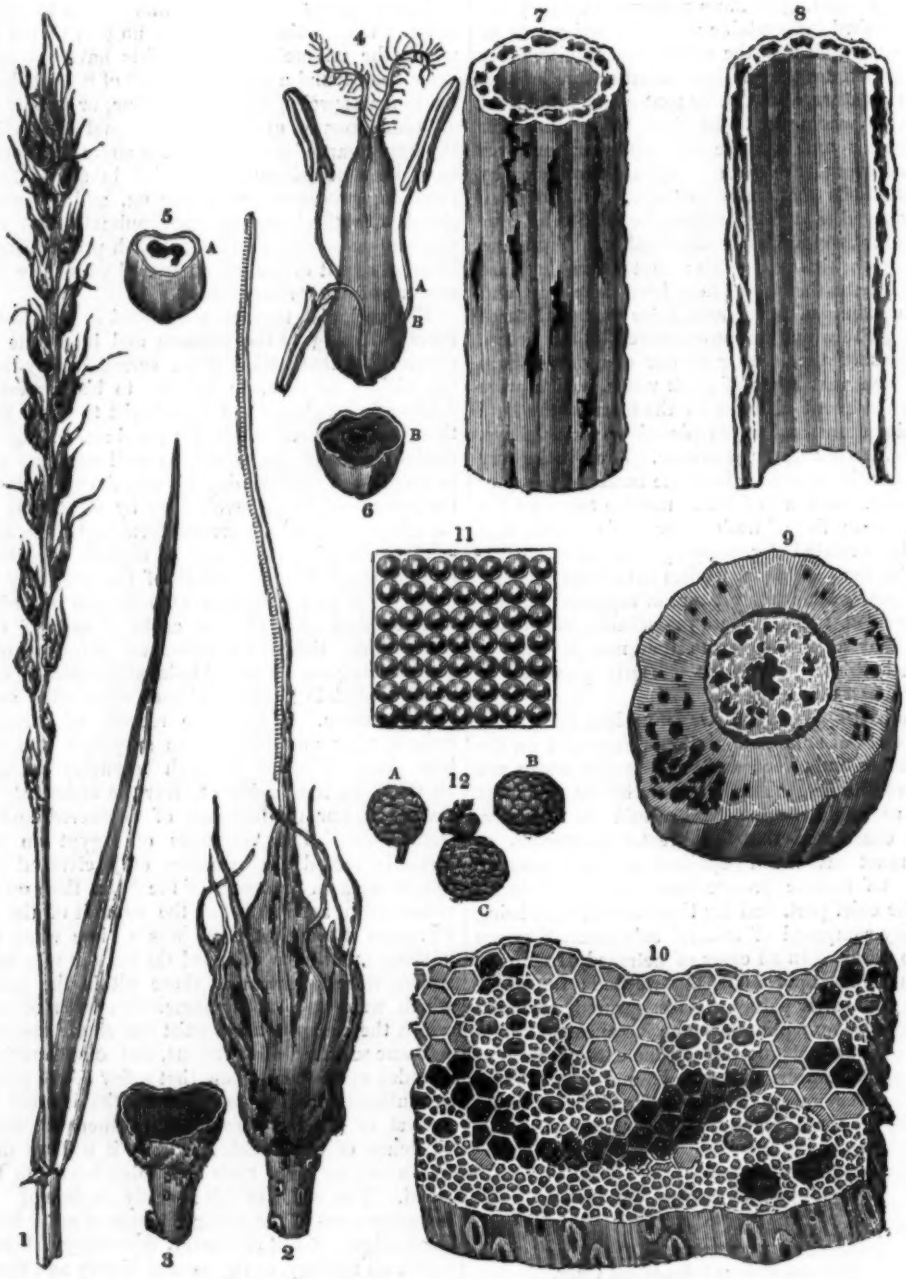
## THE SMUT OR DUST BRAND.




[TABLE II.—The Smut or Dust Brand in Barley.]

Figure

1. A barley ear, just emerged from its hose, entirely infected with smut; natural size.

2. An infected spiket of the same ear, which was evidently infected before the individual florets were developed, and when nothing but a thin membrane or film (which is bursting in many places) holds the fungi together; magnified four times lineally, or sixteen times superficially.

3. A transverse section of the base of that spiket, which is entirely filled with the fungi, and no traces of the husks or parts of fructification are left; magnified four times lineally, or sixteen times superficially.

4. A fully developed floret from the top of an infected ear, but which the seeds of the fungi reached at a late period and only partially infected; magnified five times lineally, or twenty five times superficially.

5. A transverse section of the germen of the same floret, at the upper part about A, where it is only partially filled with the fungi.

6. A transverse section of the same germen, at the lower part B, where it is already entirely filled with the fungi; both figures are magnified five times lineally, or twenty five times superficially.

7. A small portion of the stem or straw of a barley plant, strongly infected with smut or dust brand, the fungi multiplying so rapidly that they burst the epidermis in many places; magnified ten times lineally, or one hundred times superficially.

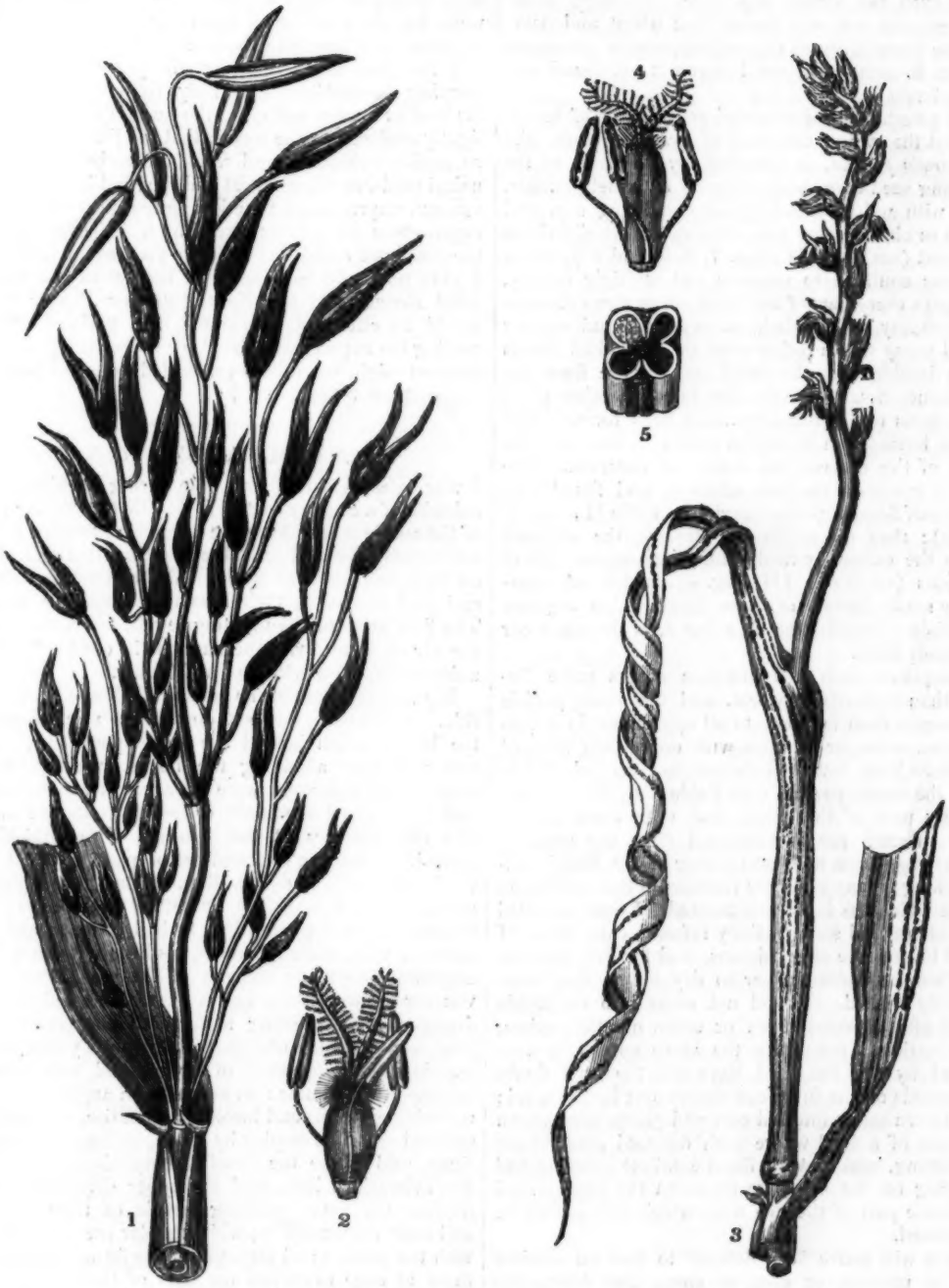
8. A longitudinal section of the above portion, to show the destructive effects occasioned by these fungi internally; magnified ten times lineally, or one hundred times superficially.

9. A transverse section of one of the knots or joints of the stalk of a barley plant, showing that not only is the stalk or straw infected, but that the hose or leaf sheath is likewise so; magnified ten times lineally, or one hundred times superficially.

10. A transverse section of a portion of the stalk of a barley plant, showing how the fungi spread and multiply in the cellular substance of the plant; magnified ten times lineally, or one hundred times superficially.

11. $\frac{1}{160000}$ part of a square inch, on the micrometer, sustaining forty-nine ripe fungi of *uredo segetum*, or smut or dust brand; magnified four hundred times lineally, or 160,000 times superficially, showing that not less than *seven millions eight hundred and forty thousand fungi* of uredo segetum would be required to cover a square inch, English measure.

12. A, a fungus of uredo segetum, not quite ripe; B, a perfectly ripe one; and C, one in the act of shedding its seeds; each figure magnified one thousand times lineally, or 1,000,000 times superficially.




[Table III.—The Smut or Dust Brand in Oats; and the Smut or Dust Brand in Wheat.]

Figure

1. A slightly infected panicle of an oat plant, about three days after emerging from its hose, when the infection is rapidly increasing through the whole panicle; natural size.
2. The parts of fructification of one of the florets, in the uppermost parts of the panicle, showing the progressive action and infection of the fungi; the germen is already filled, and the pistils and tender filaments are full of black dots internally, consisting of small clusters of fungi, which multiply so rapidly, that in a very few days they burst and break all the membranes and cuticles, and entirely consume all these parts; magnified five times lineally, or twenty five times superficially.
3. An infected wheat ear, which was evidently infected, and nearly consumed, long before it emerged from its hose: after the destruction of the ear the fungi attacked the hose and leaves which are split and twisted in various forms, whilst the fungi, appearing first in stripes and rows, multiply till the whole leaf and every part of the plant are destroyed; natural size.
4. The parts of fructification of a wheat ear, which was evidently attacked after the parts of fructification were completely developed: the germen, the pistils, the filaments, and anthers are entirely filled with the fungi, and ready to burst; magnified five times lineally, or twenty five times superficially.
5. A transverse section of a portion of one of the above anthers, showing that three of its cells are already filled with the fungi, but the fourth cell is still filled with the original sound pollen grain; magnified twenty-five times lineally, or six hundred and twenty-five times superficially.

This disease, like the *Smut Balls* or *Pepper Brand*, is occasioned by a very minute parasitic fungus, of the genus *uredo*, which Persoon (in his Synopsis Methodica Fungorum) notices as *uredo segetum*. It is, however, of a decidedly different species from *uredo fœtida*, which occasions the Smut Balls or Pepper Brand, illustrated in my former paper.

The *uredo segetum* is distinguished from *uredo fœtida*, not being much more than one-half the size (see Table II., figs. 11 and 12), and by being perfectly scentless; whilst *uredo fœtida* is characterized by an extremely offensive smell. The manner in which *uredo segetum* acts upon the plants which it attacks is also very different, and the effect much more destructive than that of *uredo fœtida*, which only attacks the grains in which it vegetates, but seldom bursts; whereas the *uredo segetum* not only generally destroys the whole

ear, but even the leaves and stem. Further, *uredo segetum* attacks not only barley, but wheat and oats; and I have been informed that other species of gramineæ are subject to its attacks, but I have not yet found any such specimens.

I have ascertained, by repeated experiments of inoculation, that the seed of the fungi of *uredo segetum*, like that of *uredo fœtida*, is absorbed by the roots of the germinating seed-corn, and, being so extremely minute, is mixed with and propelled by the circulating sap, and deposited in almost every part, even in the cellular tissue of the plant (see Table II., figs. 7, 8, 9, and 10), where these seeds continue to vegetate and multiply rapidly, as well as in every part of the plant where there remains the least vitality. The whole ear is often found entirely destroyed many weeks before even the individual florets are quite developed, or the sound ears emerge from the hose. Sometimes, but rarely, the infection takes place after the parts of fructification have been formed, and even after fecundation has taken place; in that case the progress of the disease can easily be observed. The germen is generally the first attacked, and found partially, or half filled with the fungi (see Table II., figs. 4, 5, and 6); then the pistils, the stigmas, the anthers; and even the extremely tender filaments appear full of black spots (see Table III., fig. 4), which are occasioned by small clusters of these fungi, which vegetate and multiply so rapidly that in a few days the whole ear is completely filled.

In oat-plants such late infection occurs more frequently than in barley or wheat, and the whole panicle often emerges from its hose, to all appearance in a perfectly sound state, or perhaps with only a few infected spikets at its base, but the infection soon spreads visibly through the whole panicle (see Table III., fig. 1), and over every part of the plant; and even when such a partially infected ear is separated from the growing plant, the vegetation and multiplying of the fungi continue as long as any moisture remains in that portion of the plant which has been so separated. I once collected and cut off several such partially infected ears, which I intended to preserve as specimens, and for that purpose I laid them in brown paper to dry them: they were accidentally mislaid, and did not come into my hands again till after a period of six or seven months; when, on examination, I found that the whole specimens were consumed by the fungi. I have not the least doubt that the seeds of the fungi are shaken out by the wind; and that even many infected ears and plants are thrown on the soil of a field where such diseased plants have been growing, and that the fungi continue growing and multiplying on the soil, like those on the paper, until they become part of the soil, from which they cannot be distinguished.

I fear it will prove very difficult to find an efficient remedy to prevent, or even to check this destructive disease; and this fear seems strengthened by the consideration of the numerous remedies suggested by many eminent authors, as well in this country as on the continent. That the remedies of these authors should have failed in producing the desired effects is not surprising to me, for I find that the most eminent of them not only confound two or three distinct diseases, but are totally unacquainted with the real cause of any of the diseases: for some consider them caused by insects; some attribute them to blasts of the wind; others consider the disease to be a corruption of the sap of the plant. These, and many other causes, equally erroneous, have been advanced; but I hope that, if it be admitted that the seeds of the parasitical fungi are the real and only cause of this disease, it will naturally occur to every one, that if the vitality of the seeds of these parasites could effectually be destroyed, the disease would be prevented. That the steeping in lime-water destroys the vitality, I have proved by many experiments; and also that lime-water has the same effect upon the seeds of the *uredo segetum*, as it has upon those of *uredo fœtida*.

I fear that much difficulty will present itself to the steeping the seed-corn effectively, from the structure of the seed of barley and oats, the kernels of which are so tightly enclosed in the husks, that the lime-water cannot so readily penetrate, and reach the embryo, as in the naked seed-kernels of wheat and rye; but if some ingenious and unprejudiced practical agriculturist would make experiments on a large scale, by which every grain of the seed-corn could be effectually steeped in lime-water, I have no doubt but that the diseases of the *Smut* or *Dust Brand*, and the *Smut Balls* or *Pepper Brand*, would be effectually prevented, and perhaps, after repeating the experiments for a few successive years, these diseases might be entirely eradicated from the land.

*Kew, March* 3, 1833. F. B.

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## A GAME AT SKITTLES.

I WAS lately walking, on a fine spring evening, in the suburbs of a country town. It was that particular period of the season when all nature suggests thoughts of hope and cheerfulness. The hedge-row elms had scarcely put on their new livery of green, and the orchards were just sprinkled over with their bunches of opening blossom. The first notes of the nightingale and the cuckoo fell on the ear as if to say, "the summer is coming." Every animate being seemed glad and happy.

My ramble brought me to a public-house by the road side. I was tired, and sat down for a minute's rest on the bench which invited the weary passenger. There was a ground adjoining the house, where some mechanics and labourers were engaged in various sports; and as it was imperfectly concealed from the road, I saw and heard what was passing. I was quickly disgusted. I saw the clenched fist of passion, and I heard the fearful oath of desperation. There stood one who grinned with a malicious exultation at the angry countenance of the opponent that he had beaten; and there another, who, while he staked his little all with a frantic eagerness upon the chances of the game, was endeavouring to forget the consequences of his folly in quick draughts of intoxicating liquor. In one corner of the yard sat a patient, and apparently a gentle young woman, weeping for the obstinacy of her husband, who refused to accompany her home; in another, an angry master was upbraiding an idle and insolent apprentice, who had been seduced from his employ by more hardened companions. Such, said I, are the baneful temptations which make the industrious lazy, and the sober dissipated; which deprive too many working people of their happiness and their respectability; which render them discontented with the present and forgetful of the future; which cause them at once to despise the laws of their country, and the commands of their God. There is no safety in that place where the demon of *gambling* shall once enter.

As I walked hastily out of the yard, my attention was arrested by these words, "My dear boy, if you value your father's blessing, never go into a skittle-ground." This was addressed by a decent, middle-aged man, to a little boy, about nine years old, who had hold of his hand. A respectable looking woman, who was resting on her husband's arm, added her own injunction. "Mind what your father says, John, and you will never suffer as he has done by a game at skittles." My curiosity was roused: I entered into conversation with the good people. I found the man possessed much strong sense, and he had evidently bestowed some pains in the acquirement of useful knowledge. He was a gardener by trade; one of a class of men that I have often observed are more sober, thoughtful, and intelligent than the majority of artisans. His wife appeared a kind-hearted and affec-

tionate woman, who loved her family and was contented with her lot. Our conversation gradually became more free; and at last I ventured to say to the worthy man whose name I found was William Johnson, "And pray what evils have you experienced from a game at skittles?"

As I proposed this question we arrived at a cottage which stood on the side of a small nursery-ground and market-garden. The little flower-garden in front of the house was laid out with the greatest care; and the tulip and the carnation, yet unblown, but watered and sheltered with the most exact attention, showed that the florist's business and enjoyment were in a great degree united. The good man smiled as he invited me to enter his gate; and his wife placed a chair for me in their comfortable parlour, and said, "There was a time when I could not bear to think of the skittle-ground; but William's old misfortunes now only serve to make us more thankful for our present happiness."

"Fourteen years ago," said Mr. Johnson, "I came to work as foreman to my wife's father. This garden and house were his property. He was aged and infirm; and I endeavoured to discharge my duty, and to recommend myself to his good opinion, by industry and fidelity. He soon left to me the entire charge of his business, and it prospered so under my management, that he admitted me into his most perfect confidence. He had an only daughter. My occupation in the garden frequently brought us together; and an attachment was quickly formed between us, which the kind old man rather encouraged than repressed."

"He was ever an affectionate parent," said the wife.

"All went on well for a year. One evening I took a walk alone by the road where you met me. On the bench at the public-house, a gardener, who lived in the next village, was smoking his pipe. He invited me to join him; and in a short time a companion came out of the skittle-ground and challenged him to play. I thought there would be no harm in looking on. The gardener played unskilfully; and as I had seen something of the game when a boy, my vanity induced me to take up the ball to show him how he might have knocked down the pins. I accepted a challenge to play; and we played for money: I won two shillings. My opponent made me promise to give him his revenge the next night. I went home late, with a new passion in my breast.

"The next evening, after my day's labour, I went to the skittle-ground: I lost nearly a week's wages, and I got half intoxicated. The passion for gambling then began to haunt me like an evil spirit. I was restless and discontented in my business; if I gave my hours of leisure to Susan, I was absent and sullen; the affectionate lessons of the old man were tedious and insupportable. My hours of innocence were gone. I went on from bad to worse. When I came to live with my Susan's father I possessed fifty pounds; and I had hoped to have added it to his stock, and have become his partner as well as his son. I drew this out of the bank where I had placed it. There were other temptations besides the skittle-ground. My new companions introduced me to public-houses, where, in dark and stinking back parlours, there was card-playing and dicing. I still lost my money, for I hated myself, and I was therefore impetuous. The hours of leisure became too little for my fatal pursuit. I often went to these haunts of infamy at my dinner time; and, like a careless and wicked servant, I sometimes stayed through the whole afternoon. The garden became neglected; and my good old master's trade fell off. He had heard of my follies, and he told me, with a firmness which nothing could shake, that, for the peace of himself and his child, we must part.

"I had long seen how my fatal passion would terminate; but yet I was so besotted that I thought my master used me ill. I loved his daughter, though I had treated her unkindly; and I fancied that, if I could recover back my little property, the objection to our union would cease. I went to the town, and spent all my remaining money in the purchase of a lottery ticket.

"The day came on which I was to quit my good old master. He would not allow me to see Susan; but he wept bitterly as he gave me his hand. I fell at his feet, and confessed my errors with a sincere contrition. But he would not hear of any proposition that I should continue with him. He loved his daughter too well, he said, to confide her happiness to a gambler.

"The day on which I left a place which had been so dear to me was the day on which the drawing of the lottery was announced. I went to the office. I could hardly ask the fate of my ticket; when the clerk said it was a blank, I stood like an idiot. I rushed out of the town, and passed the night in the fields. The next wicked impulse of my mind was to destroy myself; but, God be thanked, I struggled with that temptation. In the morning I recovered a little composure. I prayed most fervently for support in better courses, and my prayer was heard.

"I wandered on to the next town. I saw, from a newspaper, that a gentleman wanted a gardener, and I was fortunate in procuring the situation. My master was a kind-hearted man; for I told him of my folly, and he trusted in my penitence. For two years I served this good gentleman with diligence and fidelity. I lost not an hour; and I shunned all sort of gambling as I would the plague. At the end of that time I heard that the father of Susan was no more. I hastened to assure her of my repentance and my reformation. I had saved a little money once again; I threw it into her lap, and it enabled her to pay a pressing creditor, for her father's business had been neglected, and he had scarcely left money enough to discharge his debts. She had confidence enough in me to accept this sum as a loan. In another year, her prudence did not prevent her affection from receiving me as a husband. We married; and the world has gone smoothly with us. But I sometimes grieve to think how my errors must have embittered the lives of those I loved; and I thank my God, who did not desert me in my extremest temptation. So now you see why I cautioned my boy against a 'game at skittles!'"

Such was in substance the story of William Johnson's temptation. His case is not a singular one. There is little incident in his narrative; but I have written it down in the hope that the example may do good, by showing how easily the best disposed may yield to evil, and how resolutely they must struggle with such seductions, to prevent them making a total wreck of their happiness and respectability.

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## THE CONDOR.

One of the figures in the following wood-cut represents a specimen of the great vulture of South America, popularly called the Condor, which is now to be seen in the Surrey Zoological Gardens. Although of large dimensions, the condor of reality is a much smaller bird than the condor of fable. One of the great advantages of menageries is that of being able with our own eyes to distinguish truth from fiction;—and thus, in the bird before us, we see an exceedingly muscular and powerful creature, some two or three feet in height, with wings measuring from six to eight feet from the tip of one to the tip of the other;—but we cannot here find the bird that is large enough and strong enough to carry off a buffalo in his claws, as an eagle would a rabbit. Such stories have, however, been told of the condor. Humboldt, the distinguished traveller in South America, was the first to show the absurdity of these old fabrications. He passed seventeen months in the Andes, the native mountains of

the condor; he saw the bird daily; he shot many specimens; and he is satisfied that in general their average size does not exceed that of the largest European vultures.

The authentic history of the condor is full of interest. The eagle builds "his aery on the mountain top;" but the elevation at which the eagle lives is far inferior to the snowy peaks of the Andes, where the condor has his abiding place. At the extreme limit of vegetation, where all other animals perish, the condor prefers to dwell, inhaling an atmosphere so highly rarefied that almost every other creature would perish in it. From these immense elevations this wonderful bird soars still higher up, far above the clouds; and thence, with an almost unlimited range of sight, he surveys the earth. Scenting some carcase upon which he may banquet, he descends into the plains; and there he gorges himself with a voracity almost without example. Captain Head, in his 'Rough Notes,' has given an example of this habit of the condor:—"In riding along the plain I passed a dead horse, about which were forty or fifty condors: many of them were gorged and unable to fly; several were standing on the ground devouring the carcase—the rest hovering above it. I rode within twenty yards of them: one of the largest of the birds was standing with one foot on the ground and the other on the horse's body." He adds that one of his party had also ridden up to the dead horse; and as one of these enormous birds flew about fifty yards off, and was unable to go any farther, he rode up to him, and then, jumping off his horse, seized him by the neck. The man, who was a Cornish miner, said he had never had such a battle in his life, although he was at last the conqueror.

[The Condor. From a living specimen.]

The condor does not exclusively feed upon dead or putrefying flesh; he attacks and destroys deer, vicunas, and other middling-sized or small quadrupeds. It is said, also, to be very common to see the cattle of the Indians, on the Andes, suffering from the severe wounds inflicted by these rapacious birds. It does not appear that they have ever attacked the human race. When Humboldt, accompanied by his friend Bonpland, was collecting plants near the limits of perpetual snow, they were daily in company with several condors which would suffer themselves to be quite closely approached without exhibiting signs of alarm, though they never showed any disposition to act offensively. They were not accused by the Indians of ever carrying off children, though frequent opportunities were presented, had they been so disposed. Humboldt believes that no authenticated case can be produced, in which the lammergeyer (or bearded vulture) of the Alps ever carried off a child, though so currently accused of such theft; but that the possibility of the evil has led to the belief of its actual existence.

The condor is not known to build a nest, but is said to deposit its eggs on the naked rocks. When hatched, the female is said to remain with the young for a whole year in order to provide them with food, and to teach them to supply themselves. In relation to all these points, satisfactory information still remains to be procured.

Humboldt saw the condor only in new Grenada, Quito, and Peru; but was informed that it follows the chain of the Andes, from the equator to the 7th degree of north latitude, into the province of Antioquia. There is now no doubt, says the Encyclopædia Americana, of its appearing even in Mexico, and the south-western territory of the United States.

*** The Office of the Society for the Diffusion of Useful Knowledge is at 59, Lincoln's Inn Fields.

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